

IN THE CLAIMS

We claim:

1. A method of mixing chemicals in a single wafer process:
flowing a chemical into a valve system having a tube of a known
volume;
filling said tube with said chemical to generate a measured amount of
said chemical; and
using said measured amount of said chemical in a single wafer
process.
2. The method of claim 1 wherein said valve system comprises a 6-port valve.
3. The method of claim 1 wherein said valve system comprises two 3-port
valves.
4. A method of mixing chemicals comprising:
flowing a chemical into a valve system having a tube of a known
volume;
filling said tube with said chemical to generate a measured amount of
said chemical;
flowing DI water into said valve system and pushing said measured
amount of said chemical into a chamber with said DI water; and
continuing to flow said DI water into said chamber until a
predetermined level is reached to form a mixed solution.
5. The method of claim 4 further comprising dispensing said mixed solution
onto a single spinning wafer by pressurizing said chamber.

6. The method of claim 4 wherein said valve system comprises a 6-port valve.
7. The method of claim 4 wherein said valve system comprises two 3-port valves.
8. A method of mixing chemicals comprising:
 flowing a chemical into a valve system having a tube of a known volume;
 filling said tube with said chemical to generate a measured amount of said chemical;
 flowing DI water into a first conduit and into a second conduit, wherein said DI water in said first conduit flows into said valve system to push said measured amount of chemical into a third conduit;
 combining the flow of said measured amount of chemical and said DI water in said third conduit with said flow of DI water in said second conduit; and
 dispensing said combined flow onto a spinning wafer.
9. The method claim 8 wherein said valve system comprises a 6-port valve.
10. The method of claim 8 wherein said valve system comprises two 3-port valves.
11. A method of mixing chemicals comprising:
 flowing a chemical into a first valve system having a first tube of a known volume and filling said first tube with said chemical to generate a measured amount of said chemical;

flowing DI water into a second valve system having a second tube of a known volume and filling said second tube with said DI water to generate a measured of said DI water; and

flowing an inert gas into said first and second valve systems to push said measured amount of said chemical and said measured amount of said DI water into a chamber.

12. The method of claim 11 wherein said first and said second valve systems each comprise a 6-port valve.

13. The method of claim 11 wherein said first and second valve systems each comprise two 3-port valves.

14. Pushing a chemical into a valve system with a gas wherein said valve system has a tube of a known volume and using a hydrophobic membrane to separate the chemical and the gas when filling the tube.

15. The method of claim 14 wherein said valve system comprises a 6-port valve.

16. The method of claim 14 wherein said valve system comprises two 3-port valves.